WHAT WE CLAIM IS:

1. The method of applying abrasive materials to a substrate, comprising the steps of:

a) forming a relatively small pool of superheated molten metal at the surface of a metal substrate by creating an interaction area on the substrate with a localized high energy source;

b) injecting a powder system into the pool, the system comprising metal matrix powder and abrasive powder and the abrasive powder including abrasive particles having an encapsulating thermal insulating layer for preventing the abrasive particles from being melted by the molten metal in the pool; and

c) moving the energy source relative to the substrate and thereby allowing the pool to resolidify.

2. The method of claim 1, including the step of:

a) selecting a powder system having a thermal insulating layer with a melting point in excess of the melting point of the encapsulated abrasive particle.

3. The method of claim 1, including the step of:

a) selecting a powder system having a thermal insulating layer with a melting point less than the temperature of the superheated molten metal of the pool.

4. The method of claim 3, including the step of:

a) encapsulating the abrasive particles in an insulating layer having a thickness sufficient to prevent the abrasive particles from being melted.

5. The method of claim 4, including the step of:

a) encapsulating the abrasive particles in an insulating layer having a melting point in excess of the melting point of the abrasive particles.

6. The method of claim 1, including the step of:

a) selecting a powder system having abrasive particles selected from the group consisting of aluminum oxide, zirconium oxide, chromium carbide, and silicon carbide.

7. The method of claim 1, including the step of:

a) selecting a powder system having the thermal insulating layer selected from the group consisting of nickel, cobalt, iron, titanium, chromium, hafnium, niobium, molybdenum, tungsten, and alloys thereof.

8. The method of claim 1, including the step of:

a) selecting the abrasive powder from the group consisting of nickel coated zirconium oxide and tungsten coated aluminum oxide.

9. The method of claim 1, including the further step of:

a) selecting a powder system having an equal volume ratio of the matrix powder to the particulate powder.

10. The method of claim 4, including the step of:

a) encapsulating the abrasive particles in an insulating layer having a thickness not exceeding 150 microns.

11. The method of claim 7, including the step of:

a) selecting as the insulating layer of the powder system a metal which is contained within the matrix powder.

12. The method of claim 1, including the further steps of:

a) selecting a precipitation hardenable alloy as the metal of the substrate; and

b) selecting a matrix powder adapted for preventing crack formation in the substrate during resolidification of the pool.

13. The method of claim 1, including the step of:

a) machining the resolidified pool and thereby exposing some of the abrasive particles.

14. The method of claim 12, including the step of:

a) selecting a matrix powder which has a weight predominance of one of nickel and cobalt.

15. The method of claim 1, including the step of:

a) selecting as the insulating layer a material which has a low level of oxidation resistance at high temperatures.

16. The method of claim 1, including the step of:

a) selecting as the abrasive powder an abrasive particle having a plurality of coatings forming the insulating layer.

17. The method of applying an abrasive coating to a substrate, comprising the steps of:

a) providing a precipitation hardenable superalloy substrate;

b) providing a matrix blend comprising fine metal powder and fine coated particulates, the coating on the particulates formed from a metal and providing an encapsulating thermal insulating layer;

c) forming a superheated molten pool of the superalloy by irradiating a portion of the surface of the substrate with a laser;

d) dispersing the matrix blend within the pool and continuing to irradiate the pool until the metal powder and at least the surface of the insulating

layer melt and mix with the superalloy in the pool and thereby form an alloy mix; and

e) solidifying the alloy mix by ceasing irradiation of the pool.

18. The method of claim 17, including the step of:

a) selecting as the metal of the coating a metal contained within the metal powder.

19. The method of claim 17, including the step of:

a) selecting for the substrate a superalloy having a predominance by weight of one of nickel and cobalt.

20. The method of claim 19, including the step of:

a) selecting the metal of the coating from the group consisting of nickel, cobalt, iron, titanium, chromium, hafnium, niobium, molybdenum, and tungsten, and alloys thereof.

21. The method of claim 20, including the step of:

a) selecting the particulates from the group consisting of oxides or carbides of aluminum, zirconium, chromium, and silicon.

22. The method of claim 17, including the step of:

a) providing the coating of the particulates to a thickness of from about 50 to 150 microns.

23. The method of claim 22, including the step of:

a) providing a coating which is bonded to the particulates.

24. The method of claim 23, including the step of:

a) providing a coating formed from a plurality of layers.

25. The method of claim 17, including the step of:

a) dispersing the matrix blend into the pool by injecting the metal powder and the coated particulates at a rate of from about 0.27 to about 0.30 grams per second.

26. The method of claim 25, including the step of:

a) providing a matrix blend having equal volume proportions of the metal powder and the coated particulates.

27. The product of the process of claim 17.